

Devils Tower National Monument, Accuracy Assessment Metadata

Identification_Information:

Citation:

Citation_Information:

Originator: U.S. Geological Survey

Originator: Department of the Interior

Publication_Date: 199810

Title: Devils Tower National Monument Accuracy Assessment

Geospatial_Data_Presentation_Form: database and report

Series_Information:

Series_Name: USGS-NPS Vegetation Mapping Program

Issue_Identification: Devils Tower National Monument

Publication_Information:

Publication_Place: Denver, CO

Publisher:

USGS Biological Resources Division, Center for Biological Informatics

Online_Linkage: http://biology.usgs.gov/npsveg/deto/index.html#accuracy_assessment_info

Larger_Work_Citation:

Citation_Information:

Originator: US Dept of Interior

Originator:

National Biological Survey (aka National Biological Service)

Originator: [Now the Biological Resources Division of USGS]

Originator: and National Park Service

Publication_Date: 199411

Title: Field Assessment Procedures

Geospatial_Data_Presentation_Form: document

Edition: Final Draft

Publication_Information:

Publication_Place: Denver, CO

Publisher: USGS/BRD/Center for Biological Informatics

Other_Citation_Details:

Report prepared by the USGS Center for Biological Informatics in cooperation with Environmental Systems Research Institute, 380 New York Street, Redlands, CA.

Online_Linkage: http://biology.usgs.gov/npsveg/deto/pi_rpt.pdf#assessment

Description:

Abstract:

The accuracy assessment field work was performed in July and August, 1996 to verify the accuracy of the vegetation communities spatial data developed by the USGS-NPS Vegetation Mapping Program for Devils Tower National Monument. The data points were randomly distributed stratified according to vegetation association over the project area according to protocols developed by the Program. Points were located by GPS navigation and the community information was collected at the point, without knowledge of the attributes of the vegetation spatial data. The data points were compared to the attributes of the polygon in which they were contained. Attributes of the polygons or accuracy assessment points that did not match were changed during later analysis due to errors in the AA methodology or map attribution errors. A contingency table was completed from the final dataset.

Purpose:

These data were necessary assess the mapping effort in addition to meeting the

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requirements of the mapping program.

Supplemental_Information:

All codes used in the digital file are referenced by the look-up table that accompanies this file. The look-up table is called veg.lut. It contains both the common name and latin names of the vegetation types.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199607

Ending_Date: 199608

Currentness_Reference: Ground Condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: None planned

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -104.75

East_Bounding_Coordinate: -104.63

North_Bounding_Coordinate: 44.63

South_Bounding_Coordinate: 44.5

Description_of_Geographic_Extent:

Devils Tower National Monument and about a 2 mile environ around Monument Boundaries - Black Hills, Wyoming, USA

Keywords:

Theme:

Theme_Keyword_Thesaurus: none

Theme_Keyword: National Park Service

Theme_Keyword: U.S. Geological Service

Theme_Keyword: Center for Biological Informatics

Theme_Keyword: land cover

Theme_Keyword: vegetation

Theme_Keyword: alliance

Theme_Keyword: association

Place:

Place_Keyword_Thesaurus: None

Place_Keyword: Devils Tower National Monument

Place_Keyword: Black Hills

Place_Keyword: Wyoming

Place_Keyword: USA

Taxonomy:

Keywords/Taxon:

Taxonomic_Keyword_Thesaurus: None

Taxonomic_Keywords: plant communities

Taxonomic_Classification:

Taxon_Rank_Name: Kingdom

Taxon_Rank_Value: Plantae

Access_Constraints: None

Use_Constraints:

Any person using the information presented here should fully understand the data collection and compilation procedures, as described in these metadata, before beginning analyses. The burden for determining fitness for use lies entirely with the user. For purposes of publication or dissemination, citations or credit should be given to the U.S. Geological Survey and the National Park Service.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

USGS-NPS Vegetation Mapping Program
Devils Tower National Monument

Contact_Organization:

USGS Biological Resources Division, Center for Biological Informatics

Contact_Person: USGS-NPS Vegetation Mapping Program Coordinator

Contact_Address:

Address_Type: Physical Address

Address: USGS

Address: Biological Resources Division, CBI

Address: Building 810, Room 8000

City: Denver

State_or_Province: Colorado

Postal_Code: 80225-0046

Country: USA

Contact_Address:

Address_Type: Mailing Address

Address: USGS

Address: Biological Resources Division, CBI

Address: PO BOX 25046, DFC, MS302

City: Denver

State_or_Province: Colorado

Postal_Code: 80225-0046

Country: USA

Contact_Voice_Telephone: (303) 202-4220

Contact_Facsimile_Telephone: 303-202-4229

Contact_Facsimile_Telephone: 303-202-4219 (org)

Contact_Electronic_Mail_Address: gs-b-npsveg@usgs.gov

Browse_Graphic:

Browse_Graphic_File_Name: <http://biology.usgs.gov/npsveg/deto/images/detoaa.gif>

Browse_Graphic_File_Description:

53 kbyte file showing vegetation associations and location of accuracy assessment points

Browse_Graphic_File_Type: GIF

Native_Data_Set_Environment: UNIX-ARC/INFO

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

The attributes for the accuracy assessment were recorded in the field from July and August, 1996. Vegetation associations were identified based on the field key and plant identification. If additional communities were found within a 50 meter radius of the plot center, they were recorded as well. During the analysis, it was concluded that some attributes were in error and changed to match the mapped attributes. This was done by examination of the aerial photographs under stereoscopic view. The attributes were in error due to 1) spatial error in the GPS derived coordinates (4-8 meters), 2) change of vegetation community due to temporal changes, or mis-identification of the community on the ground.

Logical_Consistency_Report:

All attributes are codes that correspond to vegetation communities and have been checked for typographical and logical errors.

Completeness_Report: All points were collected and analyzed.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The points were located using a military-style GPS receiver (PLGR), which has a published accuracy of 4-8 meters.

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report: Not applicable

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Lineage:

Methodology:

Methodology_Type: Field

Methodology_Identifier:

Methodology_Keyword_Thesaurus: None

Methodology_Keyword: Accuracy Assessment

Methodology_Description:

To assess the thematic accuracy of the vegetation map we conducted an accuracy assessment that allows the user of the digital information an additional perspective upon the data. The final product attempts to achieve the 80% per class accuracy required for this product. Not all mapping units were tested for accuracy. Since the final map contains two separate classification systems, only the mapped areas that fall under the NVCS were included in the accuracy assessment. Areas such as agricultural and undescribed vegetation units and other areas classified using Anderson Level II classification were eliminated from the sample process. Besides excluding the Anderson classified polygons we also excluded vegetation polygons visited and sampled during either the vegetation description or verification phase that were small enough to confidently say were entirely correct. These were typically riparian polygons in Hell Canyon. These small polygons were eliminated from a site visit in the random selection process but were included in the final accuracy assessment matrix. The remaining areas for sampling were then stratified and sampled according to the number of polygons in each class and the area occupied by each class. Field Procedure: The field crew consisted of two botanists that were not involved in any part of the previous work on the park. This crew either worked together or separately depending upon local conditions. Both botanists were supplied with a list of points to visit, a field key for map class identification, field data forms, and a GPS to navigate to each site forms. Both crew members worked "blind", meaning that neither one was aware of the existing mapped class designations. Upon arriving at each site, the crews scanned a wide area around the immediate location and observed any local variation in the plant associations. Using the key, the crew then assigned a plant association to the accuracy point. In cases where the variation was significant the crew made a "best fit" judgment to the class name. In addition, other associations in the area and those that might be confused with other plant associations were also noted on each field form. Site Selection: The stratified random selection of accuracy assessment sites was done on the original map classes. The x and y coordinates of each accuracy point were derived from the original vegetation coverage. The coverage was gridded into 50 x 50 meter cells using ArcGrid. A 50-meter grid was chosen because it approximates the minimum mapping unit (MMU) for the project. Using a random number generator, we then re-selected the appropriate number of grids/samples from each class and put them into a separate grid. Additional points were selected for each class over the required number to allow the field crew some latitude in case some sites were inaccessible. The reselected cells were then converted into a point coverage. The x and y coordinate for each point was then transferred to an ascii file. This coordinate file was then used by the field team along with a GPS PLGR unit to locate the position in the field. The point coverage with the accuracy locations and the assigned map unit code are included as a digital coverage. Data Analysis: Due to the inherent heterogeneity of many natural systems, many of the map class determinations to be incorrect. However, when considered in the larger

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context were correct. To address this issue we attempted to include a 'fuzzy' protocol in analyzing the field accuracy data. For example, when the field crew visited a site they noted not only the appropriate vegetation association designation for the immediate area but also other associations present. When field codes were then compared with the mapped class the point was designated correct if it agreed with any of the associations noted on the field form.

Source_Information:

Source_Citation:

Citation_Information:

Originator: USGS-Biological resources Division

Originator: U.S. National Park

Originator: Department of the Interior

Publication_Date: 199411

Title: Accuracy Assessment Procedures, NBS/NPS Vegetation Mapping Program

Geospatial_Data_Presentation_Form: document

Publication_Information:

Publication_Place: Denver, CO

Publisher:

USGS, Biological Resources Division, Center for Biological Informatics

Other_Citation_Details:

Prepared by: Environmental Systems Research Institute, Inc. Redlands, CA and National Center of Geographic Information and Analysis, University of California, Santa Barbara, CA and The Nature Conservancy, Arlington, VA under contract from U.S. Department of the Interior Biological Resources Division and National Park Service.

Type_of_Source_Media: electronic document

Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199411

Ending_Date: Present

Source_Currentness_Reference: publication date

Source_Citation_Abbreviation: Accuracy Assessment Procedures Document

Source_Contribution:

This document established the procedures and protocols for the accuracy assessment at Devils Tower National Monument.

Source_Information:

Source_Citation:

Citation_Information:

Originator: U.S. Geological Survey

Originator: Department of the Interior

Publication_Date: 199809

Title:

Devils Tower National Monument Spatial Vegetation Data:

Cover type / Association level of the National

Vegetation Classification System

Geospatial_Data_Presentation_Form: document

Series_Information:

Series_Name: USGS-NPS Vegetation Mapping Program

Issue_Identification: Devils Tower National Monument

Publication_Information:

Publication_Place: Denver, CO

Publisher:

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Biological Informatics

USGS-NPS Vegetation Mapping Program
Devils Tower National Monument

Other_Citation_Details:

Created in large part by Environmental Systems Research
Institute, Inc. Redlands, CA under contract from USGS/
BRD/CBI.

Type_of_Source_Media: Disc

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 19950725

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation:

Spatial data of vegetation communities for
Devils Tower National Monument.

Source_Contribution: The vegetation spatial data were tested for accuracy with the AA data.

Process_Step:

Process_Description:

The accuracy assessment field work was performed in July 1996 to verify
the accuracy of the vegetation communities spatial data developed by
the USGS-NPS Vegetation Mapping Program for Devils Tower National
Monument. the data points were randomly distributed stratified according
to vegetation association over the project area according to protocols
developed by the Program. Points were located by GPS navigation and the
community information was collected at the point, without knowledge of
the attributes of the vegetation spatial data.

Source_Used_Citation_Abbreviation: Spatial data of vegetation communities for Devils Tower National
Monument.

Source_Used_Citation_Abbreviation: Accuracy Assessment Procedure Document

Process_Date: 199607

Spatial_Data_Organization_Information:

Indirect_Spatial_Reference:

Devils Tower National Monument is in Crook County in northeast Wyoming and is part of
the western most Black Hills. The monument lies 10 miles east of the Bear Lodge
Mountains and 10 miles south west of the town of Hulett, Wyoming.

Direct_Spatial_Reference_Method: Point

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Point

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Grid_Coordinate_System:

Grid_Coordinate_System_Name: Universal Transverse Mercator

Universal_Transverse_Mercator:

UTM_Zone_Number: 13

Transverse_Mercator:

Longitude_of_Central_Meridian: -105

Latitude_of_Projection_Origin: 0

False_Easting: 500000

False_Northing: 0

Scale_Factor_at_Central_Meridian: .9996

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: Coordinate Pair

Coordinate_Representation:

Abscissa_Resolution: 1

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Ordinate_Resolution: 1

Planar_Distance_Units: Meters

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137

Denominator_of_Flattening_Ratio: 297.257

Entity_and_Attribute_Information:

Overview_Description:

Entity_and_Attribute_Overview:

The system is organized hierarchically to support conservation and resource stewardship applications across multiple scales. The upper levels of the hierarchy are based on the physical form or structure of the vegetation (physiognomy) and have been refined from the international standards developed by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). The two most detailed levels of the hierarchy are based on the species composition of the existing vegetation (floristics) and reflect the phyto-sociological standards that were originally developed by European ecologists. The vegetation classification is continually advanced through the collection and analysis of new field data and will be greatly strengthened during the course of the NBS/NPS mapping efforts.

National Park Service/Biological Resources Division Vegetation Inventory and Mapping Program for Devils Tower National Monument, Wyoming, Final Community Association Classification, May 1, 1998.

Alliance/Community BB=Wyoming Big Sagebrush / Bluebrush Wheatgrass

Shrub Herbaceous Vegetation BU=Green Ash - American Elm / Wolfberry

Forest CP=Eastern Cottonwood Peach Leaf Willow / Narrow Leaf Willow

Woodland GH=Grassland Complex MK=Mosaic - Kentucky Bluegrass / Little

Bluestem Grassland MW=Mosaic - Western Wheatgrass / Little Bluestem

Grassland PB=Ponderosa Pine / Bur Oak Woodland PJ=Ponderosa Pine /

Common Juniper Woodland PP1=Ponderosa Pine Complex 1 PP2=Ponderosa

Pine Complex II SC=Silver Sage Brush / Western - Wheat Grass Herbaceous

Vegetation.

Entity_and_Attribute_Detail_Citation:

Grossman, D. Et al. 1994. National Park Service / National Biological Service Vegetation Mapping Project, National Vegetation Classification System 209 pp.

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: USGS-NPS Vegetation Mapping Program Coordinator

Contact_Organization:

U.S. Geological Survey, Biological Resources Division, Center for Informatics

Contact_Address:

Address_Type: Mailing Address

Address: USGS

Address: Biological Resources Division

Address: Center for Informatics

Address: PO Box 25046, DFC, MS302

City: Denver

State_or_Province: Colorado

Postal_Code: 80225-0046

USGS-NPS Vegetation Mapping Program
Devils Tower National Monument

Country: USA

Contact_Voice_Telephone: (303) 202-4220

Contact_Facsimile_Telephone: 303-202-4229

Contact_Facsimile_Telephone: 303-202-4219 (org)

Contact_Electronic_Mail_Address: gs-b-npsveg@usgs.gov

Distribution_Liability:

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Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: HTML

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: http://biology.usgs.gov/npsveg/deto/index.html#accuracy_assessment_info

Fees: none

Metadata_Reference_Information:

Metadata_Date: 20011022

Metadata_Review_Date: 20060830

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: USGS-NPS Vegetation Mapping Program Coordinator

Contact_Address:

Address_Type: mailing and physical address

Address:

U.S. Geological Survey, Center for Biological Informatics, MS 302,
Room 8000, Building 810, Denver Federal Center

City: Denver

State_or_Province: Colorado

Postal_Code: 80225

Country: USA

Contact_Voice_Telephone: (303) 202-4220

Contact_Facsimile_Telephone: (303) 202-4219

Contact_Electronic_Mail_Address: gs-b-npsveg@usgs.gov

Metadata_Standard_Name: FGDC-STD-001.1-1999 Content Standard for Digital Geospatial Metadata, 1998 Part 1:
Biological Data Profile, 1999

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Extensions:

Online_Linkage: <http://biology.usgs.gov/fgdc.bio/bionwext.txt>

Profile_Name: Biological Data Profile FGDC-STD-001.1-1999